

AMENDMENTS

Please amend the claims, and add new claims, as follows:

1. (Previously Amended) A dual wafer stage assembly, comprising:
a base;
a first stage movable in a plane on said base to a series of first positions;
a second stage movable in said plane on said base to a series of second positions,
where said first positions and said second positions are coextensive;
a plurality of interferometers mounted on said base with a corresponding plurality of moveable mirrors mounted on said first stage and said second stage wherein said interferometers, said first and said second stages, and said moveable mirrors are configured and dimensioned to allow for continuous determination of a position of each said stage at any position even where said first stage eclipses said second stage with respect to at least one of said plurality of interferometers.
2. (Original) A dual wafer stage assembly according to claim 1, wherein said first and said second stages differ in dimension when measured in the direction perpendicular to said plane.
3. (Original) A dual wafer stage assembly according to claim 1, wherein said first and said second stages differ in at least one dimension in said plane.
4. (Original) A dual wafer stage assembly according to claim 1, claim 2, or claim 3, wherein a first said moveable mirror on said first stage and a second said moveable mirror on said second stage reflect alternatively to a common subset of said plurality of interferometers and where said second moveable mirror is larger than said first moveable mirror in at least one dimension such that a region is created where said second moveable mirror is larger than said first moveable mirror and where at least one of said plurality of interferometers utilizes said region in the continuous determination of the position of said second stage.
5. (Original) A dual wafer stage assembly according to claim 4, wherein said second stage and said second moveable mirror are the same dimensions in the plane of said second moveable mirror.

6. (Original) A dual wafer stage assembly according to claim 4, wherein said second moveable mirror is sectioned with at least one of said sections offset from the other said section in the direction parallel to the axes of said subset of interferometers
7. (Original) A dual wafer stage assembly according to claim 6, wherein said second moveable mirror is sectioned such that one of said sections is approximately the same dimensions as said stage supporting said section.
8. (Original) A dual stage assembly, comprising:
 - a base;
 - a plurality of interferometers mounted on said base for determination of stage positions, said interferometers each including at least one interferometer axis directed towards a moveable mirror;
 - a first stage moveable in a plane between multiple positions on said base and having at least a first moveable mirror mounted thereon; and
 - a second stage moveable in said plane between multiple positions on said base and having at least a second moveable mirror mounted thereon, said first and second stages being moveable to positions wherein the first stage eclipses the second stage with respect to said at least one said interferometer;wherein said first and second moveable mirrors are configured to reflect to a common subset of interferometer axes, said second moveable mirror having a reflecting surface that cooperates with said interferometers in said eclipsing positions such that the position of said second stage is continuously determinable.
9. (Original) A dual stage assembly according to claim 8, wherein said first moveable mirror's reflecting surface eclipses said first stage from said common subset of interferometers.
10. (Original) A dual stage assembly according to claim 9, wherein said second moveable mirror's reflecting surface eclipses said second stage from said common subset of interferometers.
11. (Original) A dual wafer stage assembly according to claim 8, wherein the reflecting surface of at least one of said moveable mirrors is comprised of sections.

12. (Original) A dual wafer stage assembly according to claim 8, wherein the reflecting surface of at least one of said moveable mirrors is comprised of sections and at least one of said sections is not co-planar with the remaining sections.
13. (Original) A dual wafer stage assembly according to claim 8, wherein said second moveable mirror extends beyond said second stage along the dimension defined by the intersection of the plane of said mirror and the plane of said stage.
14. (Original) A dual wafer stage assembly, comprising:
 - a base;
 - a first stage movable in a plane on said base;
 - a second stage movable in said plane on said base; and
 - a plurality of interferometers mounted along one side of said base which are directed to a first moveable mirror mounted on said first stage and a second moveable mirror mounted on said second stage where said plurality of interferometers and moveable mirrors cooperate to continuously determine the position of both said stages such that if said first stage is interposed between second said stage and at least one of said interferometers said second stage position is determined by at least one other of said interferometers.
15. (Original) A dual wafer stage assembly according to claim 14, wherein said second moveable mirror is larger than said first moveable mirror in a dimension of said mirrors' reflecting surface.
16. (Original) A dual wafer stage assembly according to claim 15, wherein said second stage and said second moveable mirror's reflecting surface are of approximately the same dimensions.
17. (Original) A dual wafer stage assembly according to claim 14, further comprising:
 - a second plurality of interferometers are mounted along a second side of said base where said second side is perpendicular to said first side of said base;
 - a third moveable mirror mounted on said first stage and a fourth moveable mirror mounted on said second stage where said second plurality of interferometers and said third and said fourth moveable mirrors cooperate to continuously determine the position of both said stages such that if said first stage is interposed between second said stage and at least one

of said second plurality of interferometers said second stage position is determined by at least one other of said second plurality of interferometers.

18. (Original) A dual wafer stage assembly, comprising:

a base;

a first stage movable in a plane on said base;

a second stage movable in said plane on said base wherein said second stage is larger than said first stage in at least one dimension of said plane; and

a plurality of interferometers and moveable mirrors wherein said interferometers are mounted on said base and said moveable mirrors are mounted on said first and said second stages and said interferometers and said moveable mirrors are configured to facilitate the continuous determination of the positions of said stages, and where one or more portions of said moveable mirrors mounted on said second stage are located on said second stage where said second stage is larger than said first stage.

19. (Original) A method of utilizing a dual stage assembly where stage position is determined using interferometers, the method comprising:

sizing a first stage and a second stage based on a determined size and exposure apparatus parameters;

providing a plurality of interferometers directed in parallel at said stages and dispersed along one side of an area in which said stages will travel such that each of said stages' positions intersect an axis created by at least one of said plurality of interferometers at all times during the movement of said stages;

equipping said first stage with a first movable mirror dimensioned to allow said interferometers to determine said first stage's position in a first desired direction;

equipping said second stage with a second movable mirror dimensioned to allow at least one of said plurality of interferometers to determine said second stage's position in said first desired direction even if said first stage should be positioned between said second stage and said dispersed interferometers;

moving said first and said second stages in said area; and

determining said first stage's position and said second stage's position in said first direction using at least one of said plurality of interferometers for each of said stages' positions at all times.

20. (Original) A method of utilizing a dual stage assembly where stage position is determined using interferometers according to claim 19, the method further comprising:

providing at least one first orthogonal interferometer directed at said stages from a second side of said area and directed orthogonally to said first plurality of interferometers;

providing at least one second orthogonal interferometer directed at said stages from a third side of said area and directed orthogonally to said first plurality of interferometers and directed parallel to said at least one first orthogonal interferometer;

equipping said first stage with a third moveable mirror and said second stage with a fourth moveable mirror, said third and fourth mirrors configured and dimensioned to reflect to said at least one first orthogonal interferometer;

equipping said first stage with a fifth moveable mirror and said second stage with a sixth moveable mirror, said fifth and sixth mirrors configured and dimensioned to reflect to said at least one second orthogonal interferometer, said at least one first orthogonal interferometer and said at least one second orthogonal interferometer and said third, fourth, fifth, and sixth moveable mirrors configured to determine said first and said second stages' positions in said orthogonal direction at all times during said stages' movement; and

determining said first stage's position and said second stage's position in said orthogonal direction at all times during said movement using said orthogonal interferometers.

Please add the following new claims:

21. (Currently Amended) An exposure apparatus that forms an image on a substrate, comprising:

a base;

a first operation area comprising a first optical device that performs a first operation on a first substrate;

a second operation area being adjacent to the first operational area, the second operational area comprising a second optical device that performs a second operation on a second substrate, the second substrate having previously had the first operation performed on the second substrate in the first operation area;

a stage system comprising a first stage and a second stage, the first and the second stages holding ~~the~~ one of the first substrate and the second substrate and being movable on the base between the first operation area and the second operation area, respectively; and

an interferometer system including a plurality of interferometers, the interferometer system constantly monitoring the position of the each of the first stage and the second stage at all times during the movement of the each stage from the second operation area to the first operation area

, wherein each stage that moves from the second operation area to the first operation area holds the second substrate that has had the second operation performed thereon in the second operation area .

22. (Previously Added) The exposure apparatus of claim 21 wherein the interferometer system constantly monitoring the position of the each of the first stage and the second stage at all times during the movement of the each stage from the first operation area to the second operation area.

23. (Previously Added) The exposure apparatus of claim 21 wherein the second operation area performs the second operation on the second substrate while the first operation area performs the first operation on the first substrate.

24. (Previously Added) The exposure apparatus of claim 21 wherein the interferometer system monitors the position of the each of the first stage and the second stage in a first direction and a second direction that is perpendicular to the first direction respectively, and the first operation area and the second operation area are disposed with offset between each other in the first direction.

25. (Previously Added) The exposure apparatus of claim 24 wherein the each of the first and the second stage has at least three mirrors that interact with the interferometer system respectively, a first mirror, a second mirror, and a third mirror are disposed on the first stage and fourth mirror, fifth mirror, and a sixth mirror are disposed on the second stage, wherein the reflect surfaces of the first, third, fourth, and sixth mirrors face the first direction and the reflect surfaces of the second and fifth mirrors face the second direction.

26. (Previously Added) The exposure apparatus of claim 24 wherein the first operation area and the second operation area are disposed with offset between each other in the second direction.

27. (New) The exposure apparatus of claim 21, wherein the second substrate that has had the second operation performed thereon in the second operation area is unloaded from each stage in the first operation area.

28. (New) The exposure apparatus of claim 27, wherein the first substrate for the first operation is loaded onto one of the first and second stages in the first operation area..